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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/532,646

12/05/2005

Nicolas Goujon

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5778

7590

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EXAMINER

HUGHES, SCOTT A

ART UNIT

PAPER NUMBER

3663

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/532,646	<b>Applicant(s)</b> GOUJON ET AL.	
	<b>Examiner</b> SCOTT A. HUGHES	<b>Art Unit</b> 3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12/18/2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 20-31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☒ Claim(s) 14 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/17/06, 1/16/07</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election with traverse of Group I and species b, i, steel rope, and ag in the reply filed on 12/18/2007 is acknowledged. The traversal is on the ground(s) that the independent claims do share a special technical feature, namely a stress member extending continuously through the sensor module. This is not found persuasive because this technical feature of a continuous stress member is taught by prior art (see Bevan US Patent 6519395). Therefore, there is no common special technical feature, and applicant is claiming multiple apparatus and multiple processes, which is not one of the allowable combinations of categories of inventions specified in PCT Rules 13.1 and 13.2.

The requirement is still deemed proper and is therefore made FINAL.

### ***Claim Objections***

Claim 14 is objected to because of the following informalities: Claim 14 recites "aganst" when it should read "against." Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 4-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bevan (6519395) in view of Barr (5724306).

With regard to claim 1, Bevan discloses a seabed seismic cable (Column 1, lines 10-28). Bevan discloses a sensor module 24 and at least one lead 10-16, 102, 104 to or form the sensor module (Column 2, Lines 10-65) (Figs. 2A-2C, 4) (Column 2, Line 48 to Column 4, Line 16). Bevan discloses a stress member 20 (with cables 10, 11, and 14 that are bypass cables and extend continuously past the sensor portion) extending continuously through the sensor module (Column 2, Lines 13-33; Column 3, Lines 2-30) (Figs. 2A-2B). Bevan discloses a first sheath 17 enclosing the first lead and the stress member, the first sheath terminating at each end of the sensor module (Figs. 1A-1C, 2A-2C, 4) (Column 2, Lines 10-54). Bevan discloses at least one mechanical guide 34, 36 in the sensor module deflecting the stress member (Column 2, Line 55 to Column 3, Line 30) (Figs. 2A-2C, 3A-3D) (end caps deflect bypassing cables that include stress members). Bevan discloses a hydrophone housed in the sensor module, but not a geophone (Columns 2-4). Barr teaches an ocean bottom seismic cable including sensor units (Column 1 Line 5 to Column 2, Line 47; Column 4, Lines 1-10). Barr teaches that both hydrophones and geophones are used in ocean bottom cables (Column 1 Line 5 to Column 2, Line 47; Column 4, Lines 1-10). It would have been obvious to modify Bevan to include a geophone in the sensor unit as taught by Barr in order to be able to attenuate multiples in the data received.

With regard to claim 4, Bevan discloses a second lead (cables 10, 11, 14) extending continuously through the sensor module (Column 2, Lines 13-33; Column 3, Lines 2-30) (Figs. 2A-2B).

With regard to claim 5, Bevan discloses that the second lead is attached to the stress member (Column 2, Lines 10-34).

With regard to claim 6, Bevan discloses a second sheath 22 enclosing the at least one second lead and the stress member (Column 2, Lines 10-34).

With regard to claim 7, Bevan discloses that the mechanical guide 34, 36 deflects the second lead (Column 2, Lines 13-33; Column 3, Lines 2-30) (Figs. 2A-2B).

With regard to claim 8, Bevan does not disclose that the second lead is an electrical lead. Bevan discloses that the leads are optical leads to the seismic sensors (hydrophones). Barr teaches that either electrical or optical leads can be used for hydrophones and geophones in seismic cables (Column 1, Lines 49-64). Therefore, it would be obvious to modify Bevan to use electrical instead of optical leads from the sensors as taught by Barr because there would be a reasonable expectation of success as they are both known to be used interchangeably in the art.

With regard to claim 9, Bevan disclose a plurality of leads bundled into at least one bundle (Fig. 1A) (Column 2, Lines 10-34).

With regard to claim 10, Bevan discloses that the bundled leads are enclosed by a protective covering (Column 2, Lines 10-34).

With regard to claim 11, Bevan does not disclose that the leads are electrical leads. Bevan discloses that the leads are optical leads to the seismic sensors

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(hydrophones). Barr teaches that either electrical or optical leads can be used for hydrophones and geophones in seismic cables (Column 1, Lines 49-64). Therefore, it would be obvious to modify Bevan to use electrical instead of optical leads from the sensors as taught by Barr because there would be a reasonable expectation of success as they are both known to be used interchangeably in the art.

With regard to claim 12, Bevan discloses that the bundle is cylindrical in cross section (Figs. 1A, 1C).

With regard to claim 13, Bevan discloses that the stress member is a steel rope (metal strands) (Column 2).

With regard to claim 14, Bevan discloses a pair of rings disposed between the first sheet and the first lead and stress member against which the first sheath may be clamped to terminate the sheath (see rings in Figs. 2A-C, 4).

With regard to claim 15, Bevan discloses that the sensor module clamps the first sheath against the rings (see rings in Figs. 2A-C, 4) (Column 2).

With regard to claim 16, Bevan discloses that the first sheath comprises a skin, jacket, and extrusion matrix (Column 2, Lines 1-34).

With regard to claim 17, Bevan discloses that the mechanical guide deflects the first lead (Column 2, Lines 13-33; Column 3, Lines 2-30) (Figs. 2A-2B).

Claims 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bevan (6519395) in view of Barr (5724306) and Carpenter 4491939).

With regard to claims 18 and 19, Bevan discloses a seabed seismic cable (Column 1, lines 10-28). Bevan discloses a sensor module 24 and at least one lead 10-16, 102, 104 to or form the sensor module (Column 2, Lines 10-65) (Figs. 2A-2C, 4) (Column 2, Line 48 to Column 4, Line 16). Bevan discloses a stress member 20 (with cables 10, 11, and 14 that are bypass cables and extend continuously past the sensor portion) extending continuously through the sensor module (Column 2, Lines 13-33; Column 3, Lines 2-30) (Figs. 2A-2B). Bevan discloses a first sheath 17 enclosing the first lead and the stress member, the first sheath terminating at each end of the sensor module (Figs. 1A-1C, 2A-2C, 4) (Column 2, Lines 10-54). Bevan discloses at least one mechanical guide 34, 36 in the sensor module deflecting the stress member (Column 2, Line 55 to Column 3, Line 30) (Figs. 2A-2C, 3A-3D) (end caps deflect bypassing cables that include stress members). Bevan discloses a hydrophone housed in the sensor module, but not a geophone (Columns 2-4). Barr teaches an ocean bottom seismic cable including sensor units (Column 1 Line 5 to Column 2, Line 47; Column 4, Lines 1-10). Barr teaches that both hydrophones and geophones are used in ocean bottom cables (Column 1 Line 5 to Column 2, Line 47; Column 4, Lines 1-10). It would have been obvious to modify Bevan to include a geophone in the sensor unit as taught by Barr in order to be able to attenuate multiples in the data received. Bevan and Barr do not disclose that the leads are deployed with an SZ winding that changes in the sensor module. Carpenter teaches that it is known to use an SZ winding and teaches modifying this winding at a sensor location (Column 2, Line 67 to Column 3, Line 65 (Figs. 1-2). It would have been obvious to modify Bevan to include the different SZ

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windings for the conductors depending on whether they are at a sensor in order to be able to loosen the conductors to take away the strain of being placed around a sensor.

Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bevan (6519395) in view of Barr (5724306) as applied to claims 1 and 4-17 above and further in view of Stephen (6430105).

With regard to claim 2, Bevan does not disclose that the sensor module includes an accelerometer, tilt meter and magnetometer. Bevan does disclose a hydrophone as a seismic sensor (Column 2). Stephen teaches that it is known to include accelerometers, tilt meters, and magnetometers in ocean bottom seismic cables in order to be able to determine the orientation of the cable for purposes of data processing (abstract; Columns 4-5). It would have been obvious to modify Bevan to include accelerometers, tilt meters, and magnetometers as taught by Stephen in order to determine the orientation of the sensor units to rotate the signals during data processing.

With regard to claim 3, Stephan teaches that ocean bottom cables include electronics for converting analog to digital signals when the sensors create analog signals (Column 2). It would have been obvious to modify Bevan to include an analog to digital converter as taught by Stephan in order to change the signals to digital signals for processing.

### ***Conclusion***



The cited prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott A. Hughes whose telephone number is 571-272-6983. The examiner can normally be reached on M-F 9:00am to 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on (571) 272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/S. A. H./  
Examiner, Art Unit 3663

/Jack W. Keith/  
Supervisory Patent Examiner, Art Unit 3663